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Serial No. 09/932,703 / Byers 39-1  
informal communicationIN THE UNITED STATES  
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## Patent Application

Inventor(s): Byers et al.

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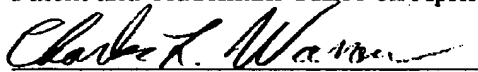
Examiner: *Hanh Phan*  
~~Chau M. Nguyen~~

Art Unit: 2633

FAX 703-872-9306

Title: Interconnecting Processing Units of a Stored Program Controlled System Using Free Space Optics

Certificate of Facsimile Transmission -- I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office on April 8, 2005.



Charles L. Warren

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SIR:

Informal Communication -- not to made of record

This communication is being sent in anticipation of a telephone interview to be conducted with the undersigned attorney, Charles Warren at 630-584-9206. A voice mail message on April 8, 2005 has been left for the Examiner requesting the telephone interview ASAP, and well before the due date for a reply by Applicant of April 26, 2005. Status of the application: it was finally rejected on January 26, 2005.

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Serial No. 09/932,703 / Byers 39-1  
informal communication**Claim 1 for Discussion**  
**(as existed at time of last Office Action)**

1. A system to provide internal communication in a stored program controlled system comprising a plurality of processing units, said system comprising:
  - a free space beam line configured to contain optically encoded signals transmitted among said plurality of processing units;
  - an elongated conduit enclosing the free space beam line;
  - means in one of said plurality of processing units for injecting optically encoded signals into said beam line; and
  - means connected to each of said plurality of units for receiving optically encoded signals from said beam line, said receiving means **comprising receivers disposed within said conduit in a helical pattern extending outward from an axis of the elongated conduit, said receivers orientated to receive respective portions of the free space beam line parallel to the axis.**

**(bold applied to point out key item for discussion)**

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Serial No. 09/932,703 / Byers 39-1  
informal communication**Remarks advising of the nature of telephone discussion****Claim 1 Rejection- 35 U.S.C. §103**

The Examiner rejected claim1 under 35 U.S.C. 103 as being obvious based on Heflinger in view of Staiger. Staiger was cited only to address the internal communication in a stored program controlled system. Hence, only Heflinger is relied on as teaching the following limitation of claim 1:

**receivers disposed within said conduit in a helical pattern extending outward from an axis of the elongated conduit, said receivers orientated to receive respective portions of the free space beam line parallel to the axis.**

Heflinger discloses 4 different embodiments shown respectively in FIGs. 1-4.

In FIG. 1 a star-coupled optical arrangement is used with a flat mirror. In this embodiment, there is no "elongated conduit". Further, the receivers 1-3 receive reflected optical beams from the flat mirror at an angle relative to the mirror and relative to the orientation of the ports associated with the transmitter/receiver pairs. Thus, the receivers do not receive an optical signal that is parallel to the axis of an elongated conduit.

FIG. 2 shows an implementation based on a spherical orientation of transmitter/receiver pairs disposed about a spherical mirror that is used to disburse the light from the transmitters so that some portion of the light can be received by the receivers. Again, no elongated conduit is shown. Also, the light received by the receivers is not parallel to an axis of the elongated conduit.

FIG. 3 shows an integrating chamber with a plurality of transmitter/receiver pairs. As explained in the supporting text, a reflective interior of the chamber is utilized to reflect light transmitted from one of the transmitters so that it is reflectively dispersed within the chamber so that a portion of it can be received by the various receivers. Although the integrating chamber could be

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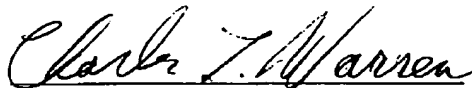
characterized as an elongated conduit, this embodiment does not include receivers that are oriented to receive free space beam lines parallel to the axis of the conduit. To the contrary, the receivers are oriented to receive light reflected from various angles from the interior surface of the integrating chamber. It is clear that the light is not transmitted (or received) parallel to the axis of the chamber, otherwise it would simply exit the chamber without being reflected as taught by the reference and hence would not be available to be received by the receivers.

FIG. 4 shows a direct path optical data bus in which a plurality of cylindrical lenses placed in front of the optical transmitters are used to disburse the light into a fanned-out beam so that the various receivers can receive a portion of this beam. No elongated conduit is shown. Also, the light received by the receivers is not parallel to an axis of an elongated conduit.

Therefore, none of the embodiments disclosed in Heflinger support the teaching required in claim 1. That is, none of the embodiments disclose an elongated conduit with receivers disposed in a helical pattern about the axis of the conduit, wherein the receivers are oriented to receive portions of the free space beam line that is parallel to the axis of the elongated conduit.

Thus, it is respectfully submitted that Heflinger does not teach or suggest this required limitation of claim 1. It is believed that the withdrawal of the rejection is appropriate.

Respectfully submitted,



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Dated: April 8, 2005

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